



NSAI
Standards

Irish Standard
I.S. EN 62788-1-5:2016

Measurement procedures for materials used in photovoltaic modules - Part 1-5:
Encapsulants - Measurement of change in linear dimensions of sheet encapsulation material resulting from applied thermal conditions

I.S. EN 62788-1-5:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

I.S. EN 62788-1-5:2016 is the adopted Irish version of the European Document EN 62788-1-5:2016, Measurement procedures for materials used in photovoltaic modules - Part 1-5: Encapsulants - Measurement of change in linear dimensions of sheet encapsulation material resulting from applied thermal conditions

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EUROPEAN STANDARD

EN 62788-1-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2016

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English Version

**Measurement procedures for materials used in photovoltaic modules - Part 1-5: Encapsulants - Measurement of change in linear dimensions of sheet encapsulation material resulting from applied thermal conditions
(IEC 62788-1-5:2016)**

Procédures de mesure des matériaux utilisés dans les modules photovoltaïques - Partie 1-5: Encapsulants - Mesurage de la variation des dimensions linéaires des matériaux d'encapsulation en couches minces résultant des conditions thermiques appliquées
(IEC 62788-1-5:2016)

Messverfahren für Werkstoffe, die in Photovoltaikmodulen verwendet werden - Teil 1-5: Verkapselungsstoffe - Messung der linearen Längenänderung von Verkapselungsstoffen in Folienform aufgrund der angewendeten thermischen Bedingungen
(IEC 62788-1-5:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

EN 62788-1-5:2016

European foreword

The text of document 82/1114/FDIS, future edition 1 of IEC 62788-1-5, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62788-1-5:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-06-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-12-09

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60216-4-1	-	Electrical insulating materials - Thermal endurance properties -- Part 4-1: Ageing ovens - Single-chamber ovens	EN 60216-4-1	-
ISO 291	-	Plastics - Standard atmospheres for conditioning and testing	EN ISO 291	2008
ISO 11357-2	-		EN ISO 11357-2	2014
ISO 11357-3	-		EN ISO 11357-3	2013
ISO/IEC 17025	2005	General requirements for the competence of testing and calibration laboratories	-	-
ASTM C778-06	-	Standard Specification for Standard Sand	-	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Measurement procedures for materials used in photovoltaic modules –
Part 1-5: Encapsulants – Measurement of change in linear dimensions of sheet
encapsulation material resulting from applied thermal conditions**

**Procédures de mesure des matériaux utilisés dans les modules
photovoltaïques –
Partie 1-5: Encapsulants – Mesurage de la variation des dimensions linéaires
des matériaux d'encapsulation en couches minces résultant des conditions
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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Measurement procedures for materials used in photovoltaic modules –
Part 1-5: Encapsulants – Measurement of change in linear dimensions of sheet
encapsulation material resulting from applied thermal conditions**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MEASUREMENT PROCEDURES FOR MATERIALS
USED IN PHOTOVOLTAIC MODULES –**
**Part 1-5: Encapsulants –
Measurement of change in linear dimensions of sheet
encapsulation material resulting from applied thermal conditions**

FOREWORD

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International Standard IEC 62788-1-5 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
82/1114/FDIS	82/1134/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62788 series, published under the general title *Measurement procedures for materials used in photovoltaic modules*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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MEASUREMENT PROCEDURES FOR MATERIALS USED IN PHOTOVOLTAIC MODULES –

Part 1-5: Encapsulants – Measurement of change in linear dimensions of sheet encapsulation material resulting from applied thermal conditions

1 Scope

This part of IEC 62788 provides a method for measuring the maximum representative change in linear dimensions of encapsulation sheet material in an unrestricted thermal exposure as might or might not be seen during photovoltaic (PV) module fabrication. The standard does not take into account any resulting stresses which may develop due to restricted dimensional changes or friction during module fabrication.

Data obtained using this method may be used by encapsulation material manufacturers for the purpose of quality control of their encapsulation material as well as for reporting in product datasheets. Data obtained using this method may be used by PV module manufacturers for the purpose of material acceptance, process development, design analysis, or failure analysis.

This method may also be used to examine other materials, such as backsheets and frontsheets as described in IEC 62788-2. Certain details of the test (including specimen size and substrate) are specified for that application in 62788-2.

2 Normative references

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ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*

ISO 291:2008, *Plastics – Standard atmospheres for conditioning and testing*

ISO 11357-2:2013, *Plastics – Differential scanning calorimetry (DSC) – Part 2: Determination of glass transition temperature and glass transition step height*

ISO 11357-3:2011, *Plastics – Differential scanning calorimetry (DSC) – Part 3: Determination of temperature and enthalpy of melting and crystallization*

ASTM C778–06, *Standard specification for standard sand*

3 Principle

Encapsulation material (in sheet form) may change dimensions when processed during the fabrication of a PV module. The change in dimensions is typically caused by stresses formed

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